POLLUTION OF THE SEAS BY CRUDE OIL—A PROPOSAL FOR EFFECTIVE REMEDIAL ACTION

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> The contamination of coastal waters does not long remain solely the problem of the nation in whose waters it has its origin. Wildlife—fish, fowl and animal—is no respecter of national boundaries, either in its movements or in the sources from which it draws its being. Indeed, the entire ecology of the planet is not arranged in national compartments; and whoever interferes seriously with it anywhere is doing something that is almost invariably of serious concern to the international community at large.[1]

Every act of pollution creates a threat to man's existence and will require immediate action, first to curtail and then eventually to prevent all unwanted discharges into our air and water. The following discussion will be limited to pollution of the seas by crude oil and will consider a proposal for the prevention and cleanup of further pollution.

I. THE SOURCES, EFFECTS, AND FUTURE OF OIL POLLUTION

Crude oil pollution of the seas today comes from several sources, including the maritime carriage of oil, off-shore drilling operations, and the intentional dumping of oil. Spills from supertankers have focused world attention on the oil pollution crisis.[2] For example, the grounding of the *Torrey Canyon*[3] resulted in the spilling of 119,193 tons of Kuwait crude oil onto the Atlantic Ocean,[4] with 15,000 tons of that oil reaching the shores of France alone.[5] Another disaster, the wreck of the *Ocean Eagle*, spilled about 3,500 tons[6] of crude oil onto the ocean, causing the desecration of 110 miles of prime Puerto Rican recreation beaches.[7] Five days later a Greek tanker, the *General Colocotronis*, ran aground and dumped its cargo of crude oil onto the water, ruining the beaches of Eleuthera Island.[8] Off the coast of New York, the *Mary Z. Whalen* was responsible

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[1] Kennan, *To Prevent A World Wasteland*, 48 FOREIGN AFFAIRS 401 (1970).

[2] Neuman, *Oil On Troubled Waters: The International Control of Marine Pollution*, 2 J. MAR. L. & COMM. 352 n.7 (1971) [hereinafter cited as Neuman].

[3] Comment, *Oil Pollution of the Sea*, 10 HARV. INT'L L.J. 316 (1969) [hereinafter cited as Comment].

[4] Dedera, *Santa Barbara & Beyond: The Great Oil Disaster is Over . . . Or Is It?* OCEANS, May-June, 1970 at 31 [hereinafter cited as Dedera].

[5] "TORREY CANYON," POLLUTION AND MARINE LIFE 163 (J. Smith ed. 1968) [hereinafter cited as Smith]. This work provides an in-depth scientific analysis of the effects of crude oil on wildlife and the food chain.

[6] Nanda, *International Liability Trust Fund*, TRIAL, Aug. 1968, at 50 [hereinafter cited as Nanda].

[7] *Id.*

[8] *Id.*

for 20 fouled beaches when her cargo was spilled after running aground.[9] The list seems endless.[10]

During 1969, there were approximately 950 spills from the maritime carriage of oil.[11] One estimate places the quantity of crude oil spilled, flushed, or leaked onto the seas in transport and port operations at one million tons per year;[12] and if oil spills from off-shore installations were included, the total might soar to almost 100 times as much.[13] The damage caused by these disasters suggests that such incidents are the major contributors to the oil pollution crisis. However, the quantity contributed by the large number of smaller spills dwarfs the larger, more dramatic disasters.[14]

Another source of oil pollution is off-shore drilling installations,[15] which until recently have gone unregulated by international agreements or customary international law.[16] Off-shore installations are presently located within the territorial waters of nations permitting them; however, improved technology and the success of such operations make their expansion into international waters likely.[17] The oil spill off the coast of Santa Barbara, California is illustrative of the consequences which off-shore drilling can produce.[18]

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[9] Dedera, *supra* note 4, at 31.

[10] *Industry and Technology—Keys to Oceanic Development*, 2 PANEL REPORTS OF THE COMMISSION ON MARINE SCIENCE, ENGINEERING AND RESOURCES, at 103 [hereinafter cited as PANEL REPORTS]. Some other spills are: York River, Virginia 1967, a Liberian registered tanker, the *S. S. Desert Chief*, lost between 500 and 1,200 barrels of crude oil during unloading operations; Cape Cod National Seashore 1967, several large oil slicks contaminated about 30 miles of coastline, including recreational beaches, and killed ducks and other wildlife, source unknown; Long Beach, California 1966, a levee around an oil company's holding pond broke in a storm and 200 barrels of crude oil were dumped into the harbor.

[11] Dedera, *supra* note 4, at 31.

[12] *Id.* at 30.

[13] *Id.*

[14] Hartley, *Challenge to the Environment: Some International Implications*, 14 ORBIS 490, 493 (1970) [hereinafter cited as Hartley].

[15] *See, e.g.*, PANEL REPORTS, *supra* note 10.

[16] Krueger, *International and National Regulation of Pollution From Offshore Oil Production*, 7 SAN DIEGO L. REV. 541 (1970) [hereinafter cited as Krueger]. The United States is not alone in its development of offshore drilling installations. Some others are Brazil, Australia, Dahomey, Mexico, Trinidad, Taiwan and Japan.

[17] Dole, *Ocean Minerals and the Law*, 2 NATURAL RESOURCES LAWYER 352 (1969) [hereinafter cited as Dole].

[18] On January 28, 1969, a Union Oil Company crew on Platform A reached their primary drilling target at about 3,500 feet below the ocean floor. When the target was reached the crew began a routine operation known in their trade as "making a trip." When "making a trip" the crew removes the worn drill bit and replaces it with a new one. During this operation the drill shaft is empty for a moment until the new bit is inserted into the shaft. A common occurrence while the shaft is empty is a "blowout." The blowout results from the rising of underground pressure up through the vacant shaft to the surface. When a blowout occurs, the platform crew forces mud down the shaft to restrain the rising pressure.

The day of the Santa Barbara spill, oily mud began shooting up and out of the empty shaft as the crew was "making the trip." The force was so great the crew could not reconnect the fixture to control the blowout and a geyser erupted. The platform crew then resorted to an

The disaster at Santa Barbara is an oil pollution nightmare in a single event; however, continuing intentional acts of pollution, although not as dramatic, also contribute to the problem. For example, oil-saturated muds are dropped from off-shore drilling platforms and oil-soaked cuttings are thrown from platforms into the water. Oil is lost overboard during transportation to shore-based installations and during production and storing operations.[19] Pipelines on the sea bed that carry oil from the platforms to storage facilities ashore are potentially hazardous if ruptured by a storm or by a ship's anchor.[20] In addition, a continuing stream of oil rises from sunken ships such as the *U.S.S. Arizona*[21] and from the 428 other vessels sunk during World War II,[22] 100 of which were tankers.[23] The sunken tankers have not been cause for alarm yet, but the potential for pollution is a staggering five million barrels of oil trapped in their hulls.[24]

Two other instances of intentional pollution are dumping ballast water and cleaning tanks. When an oil tanker discharges its cargo of oil in port, it usually will depart empty for another port to reload and in order to provide stability at sea the vessel takes on water to fill its tanks.[25] During the voyage the water taken in as ballast mixes with the oily residue left in the tanks of the ship; but since most ports prohibit the dumping of oily ballast in their harbors, the tankers dump this ballast at sea and take on fresh sea water to provide stability for entering port. Then, when the ship is in port, the fresh ballast is dumped to provide space for new cargo.[26] Although the ballast dumped from a single ship does not add a significant amount of pollution to the water, the cumulative effect of the great number of voyages per year results in a substantial source of oil pollution.[27] The

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emergency measure that was the ultimate cause of the Santa Barbara spill. The old drill bit was dropped back into the empty shaft. The shaft was sealed shut with hydraulic rams. Dedera, *supra* note 4, at 22. The unbelievable followed:

> For seven minutes all was quiet. Then, 200 yards off the northeast corner of Platform A, the sea gave forth a vulgar, yellowish belch. The surface of the channel heaved as the boil of volatile, poisonous natural gas crept towards the patform, forcing the workers to save themselves in boats. The sea strangely quieted as tremendous volumes of sepia-colored crude oil floated up and surrounded Platform A.

There were conflicting reports as to the quantity of oil spilled but an average of 5,000 barrels a day is probably an accurate figure. *Id.* at 24.

[19] *See* PANEL REPORTS, *supra* note 10, at 103.

[20] *Id.* Pipelines present a problem for navigation and ships' anchors—there are approximately 1,800 miles of unchartered pipeline lying on the bottom of the Gulf of Mexico waiting for an anchor to hook on and tear a pipe open. *See* Comment, *supra* note 3, at 320 n.25.

[21] Dedera, *supra* note 4, at 32.

[22] Comment, *supra* note 3, at 320.

[23] Dedera, *supra* note 4, at 32.

[24] Comment, *supra* note 3, at 320.

[25] *Id.* at 319.

[26] *Id.* at 319 n.20.

[27] *Id.* at 319. For example, the State of Alaska has reported that as a consequence of tankers dumping oily ballast at sea, 1,000 miles of coastline in the Kodiac Island area were coated with oil and 10,000 birds perished. Dedera, *supra* note 4, at 31.

ocean is polluted in a similar manner when a ship's crew cleans the vessel's tanks at sea by removing the oily residue from the tanks and depositing it on the ocean.[28]

Oil rising from cracks in the ocean floor, which are created by man and by natural seismatic activity, is another source of oil pollution. There are four major cracks and two minor cracks off the western coast of the United States[29] in the vicinity of Santa Barbara and Coal Oil Point, California.[30] The quantity of oil seeping from these cracks is disputed,[31] but one reliable source places the amount at between 11 and 160 barrels per day.[32] Moreover, that seepage is likely to continue because the Santa Barbara Channel area is seismatically alive. Technology has not been able to provide a method of stopping the flow.[33]

A more serious, albeit not as visible, consequence of oil pollution on the environment is the destruction of aquatic life. With the world's population increasing,[34] nations are beginning to realize that they must look to the vast resources of the sea to provide more food.[35] Limiting the exploitation of these new food sources is the reality of the destruction caused by oil pollution. As the number of oil pollution disasters and smaller spills increases, there will continue to be a decrease in aquatic life.[36] Dr. Erwin S. Iversen, a noted marine biologist, has detailed the effects of oil pollution on marine life:

> The greatest problem may be the toxic effects on the intertidal animals that serve as food for the other more important fishes . . . I don't think the effect is merely that of killing large populations of commercial fishes. Worse than that, it interrupts the so-called food chain.[37]

If the chemicals in the spilled oil do not kill the marine life that fish feed

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[28] Comment, *supra* note 3, at 319.

[29] Dedera, *Pacific Report*, OCEANS, Jan.-Feb. 1971 at 72-73 [hereinafter cited as *Pacific Report*].

[30] *Id.*

[31] *Compare* Comment, *supra* note 3, at 320 *with Pacific Report*, *supra* note 29, at 72-73.

[32] *Pacific Report*, *supra* note 29, at 72.

[33] Red Adair, Inc., a company which specializes in fighting oil fires, has tried to seal such cracks. When the Santa Barbara Channel crack was created, Red Adair, Inc. was called in to stop the flow of oil. By using 13,000 barrels of sealant they were able to stop the flow temporarily but the fissures reopened in a few days.

[34] Hartley, *supra* note 14, at 494.

[35] *Id.*

[36] *Id.* When an oil spill occurs, surface feeding fish cannot obtain the food they need and may perish. The results of a recent study indicate that the oyster's source of food—the diatom—will not grow where oil has polluted the water. The magnitude of such an effect upon the diatom is apparent from the results of a test which determined that it takes ten pounds of plant matter to produce one pound of fish. Further evidence was provided by an oil spill near Narragansett Bay, Rhode Island. The *P. W. Thirtle* went aground and dumped 31,000 gallons of oil onto the ocean. An entire oyster fishery was destroyed. Comment, *supra* note 3, at 321-22.

[37] Comment, *supra* note 3, at 321. For an excellent survey of the nature of the food chain, *see* Schachter & Serwer, *Marine Pollution Problems and Remedies*, 65 AM. J. INT'L L. 84 (1971) [hereinafter cited as Schachter & Serwer].

upon, the chemicals may accumulate in the fish and affect the people who eat them.[38] There have been several reports that fish caught in oil spill areas taste like oil.[39]

The oil spill outlook seems certain—more to come. The 100 tankers that took their estimated five million barrels of oil to the bottom of the sea during World War II[40] present one potential source;[41] and considering the projected sizes of future supertankers, a one million ton oil spill could become a reality. The present capacity of supertankers is approximately 250,000 tons.[42] The Japanese are constructing a tanker with a 477,000 ton capacity[43] and plan to begin construction on a 500,000 ton capacity ship soon.[44] The Japanese have also drawn plans[45] and received an order for a one million ton tanker.[46] If a one million ton tanker should meet with an accident at sea and spill its entire cargo, previous disasters will seem minuscule in comparison.

As improved technology paves the way for a move into international waters, off-shore oil rigs will become an international pollution threat unless strictly regulated.[47] The success of the *Glomar Challenger*, a deep sea exploratory vessel,[48] could provide the technological means for international exploration:

> Technologically, the project has already shown that men can drill at true ocean depths, should they want to do so for oil recovery. It continues to refine the techniques. And, by fitting a funnel to the top of a drill hole, it has shown how to re-enter such a boring in deep water when necessary. Oil men may indeed want to do this in the future . . . .[49]

A further source of potential oil pollution may come from the practice of storing oil at sea in large floating tanks.[50] Such tanks are presently being utilized in the Persian Gulf[51] and off the coast of Nigeria.[52] Float-

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[38] Schachter & Serwer, *supra* note 37, at 90.

[39] *Id.*

[40] Comment, *supra* note 3, at 320.

[41] The United States Coast Guard has examined the hulls of the sunken tankers to determine the rate of corrosion. The results are still inconclusive. Dedera, *supra* note 4, at 32.

[42] The Christian Science Monitor, Apr. 19, 1971, at 6, col. 2.

[43] *Id.*

[44] *Id.*

[45] TIME, Mar. 29, 1971, at 49.

[46] *Supra* note 42.

[47] Dole, *supra* note 17.

[48] Cowen, *Poking Into The Earth's Past*, The Christian Science Monitor, Feb. 9, 1971, at 9, col. 1.

[49] *Id.*

[50] TIME, Feb. 15, 1971, at 69.

[51] PANEL REPORTS, *supra* note 10, at 176. Capacity of 250,000 barrels.

[52] *Id.* Capacity of 360,000 barrels.

ing storage tanks could present a navigational hazard similar to that of offshore installations.[53]

However, the most controversial prospect for oil pollution is a proposed pipeline to carry crude oil from the north slopes of Alaska to the port of Valdez, Alaska.[54] An alternative pipeline route would have the pipeline begin on the north slopes and terminate at Edmonton, Alberta Province, Canada.[55] The Alaska-Canada pipeline would run along the lowlands of the Mackenzie River.[56] Either proposal could create oil pollution nightmares for environmentalists and if the Secretary of the Interior approves the north slope to Valdez pipeline[57] it will be evident that the United States has overlooked a valuable lesson from a recent Russian experience. The Canadians might also regret approval if the Mackenzie River pipeline is constructed.

Recently, one of the Soviet Union's largest oil pipelines cracked in several places.[58] The oil spilled from the pipeline ran into nearby waterways and then into the Caspian Sea.[59] As a result, the Soviet Union's source of caviar, the Sturgeon fishing grounds, may be destroyed and farm land ruined.[60] The cause of the disaster was said to be the inability of the pipe to withstand the variation between the low outside temperature and the heated oil flowing through the pipe.[61] The Alaskan pipeline would pose similar problems because its projected course lies in a climate very similar to that of the Russian pipeline. Presumably higher quality pipe could be used to reduce the chances of breakage, but there is an additional factor to consider—the Alaskan pipeline would cross three earthquake zones.[62]

Another future oil pollution nightmare may come from two recent tanker innovations proposed by General Dynamics Corporation[63] and by Boeing.[64] General Dynamics could build a 250,000 ton nuclear powered submarine supertanker to carry oil from Alaska's north slope to ports on

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[53] Comment, *supra* note 3, at 320 n.25.

[54] The Christian Science Monitor, Feb. 11, 1971, at 1, col. 4.

[55] *Supra* note 45.

[56] *Supra* note 54.

[57] There are indications the pipeline might best be constructed across Canada if the Canadians would permit it. Anderson, *Cross-Canada Pipeline Cheaper, Study Claims*, Oregon Journal, July 23, 1971, at 18 J, col. 3. Secretary of the Interior Morton has indicated that all the necessary studies are completed and an environmental impact statement almost complete. The report will go to the Council on Environmental Quality for review before being sent to the President. Hoyt, *Alaska Oil Action Due*, The Christian Science Monitor, Oct. 21, 1971, at 3, col. 4.

[58] The Cleveland Plain Dealer, March 23, 1971, at 10A, col. 1.

[59] *Id.*

[60] *Id.*

[61] *See* Lloyd, *Canada's Arctic*, 48 FOERIGN AFFAIRS 733 (1970).

[62] *Supra* note 58.

[63] *Supra* note 45.

[64] *See* AVIATION WEEK AND SPACE TECHNOLOGY, Sept. 20, 1971, at 24.

the Atlantic Coast. The new tanker would carry its cargo under the polar icecap.[65] Boeing's entry is a supertanker aircraft that would transport oil through the air.[66]

Canada moved unilaterally to prevent voyages of a submarine supertanker under the polar icecaps or on the surface through its arctic region by declaring an antipollution zone[67] of up to 100 nautical miles from its arctic coast[68] with penalties provided for anyone polluting the region by oil.[69] Canada's reason for concern and immediate action stems from the critical nature of oil pollution in the arctic. Crude oil spilled in the arctic region would quickly thicken under the zero temperatures and present an insurmountable cleanup task.[70]

II. The International Response to Oil Pollution

The response to oil pollution of the oceans has been vigorous. Several conventions have been drafted and ratified by nations wanting to solve the crisis; and although none of them seems to be sufficient in and of itself, each has its desirable provisions.

A. *The International Convention for the Prevention of Pollution of the Sea by Oil, 1954*

In 1954, delegates from 32 countries attended a conference in Brussels to consider the oil pollution crisis.[71] The result of the conference was the International Convention for the Prevention of Pollution of the Sea by Oil, 1954,[72] which became effective in 1958 and was ratified by the United States in 1961.[73] The Convention was amended in 1962 and again in 1969 under the auspices of the International Maritime Consultative Organization (IMCO), a specialized agency of the United Nations.[74] The preamble of the International Convention for the Prevention of Pollution of the Sea by Oil limits the Convention to oil discharged by ships[75] and does not consider the problem of off-shore installations. Moreover, the effec-

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[65] *Supra* note 45.

[66] *Supra* note 64.

[67] Henkin, *Arctic Anti-Pollution: Does Canada Make or Break International Law?*, 65 Am. J. Int'l L. 131 (1970) [hereinafter cited as Henkin].

[68] *Id.*

[69] *Id.*

[70] *Supra* note 61, at 738-39.

[71] Healy & Paulsen, *Marine Oil Pollution and the Water Quality Improvement Act of 1970*, 1 J. Mar. L. & Comm. 537 (1970) [hereinafter cited as Healy & Paulsen].

[72] International Convention for the Prevention of Pollution of the Sea by Oil, 1954, *open for signature* May 12, 1954, [1961] 3 U.S.T. 2989, T.I.A.S. No. 4900, 327 U.N.T.S. 3.

[73] Healy & Paulsen, *supra* note 71.

[74] Comment, *supra* note 3, at 332-34.

[75] International Convention for the Prevention of Pollution of the Sea by Oil, 1954, *open for signature* May 12, 1954 [1961] 3 U.S.T. 2989, T.I.A.S. No. 4900, 327 U.N.T.S. 3.

tiveness of the Convention is further reduced by the small number of signatory nations.[76]

Article II identifies the vessels subject to the Convention but excepts government ships belonging to the contracting parties and their whaling vessels from its provisions.[77] Later amendments place size limitations on vessels responsible for oil discharges at over 150 gross tons.[78]

Protective 100 mile zones are established by an amendment to Article III.[79] The discharge of oil or oily mixtures beyond these 100 mile zones is permitted, but there are limitations on the amount of oil that may be dumped.[80] Oil may be discharged from vessels other than tankers if four conditions are met: (1) the vessel must be proceeding to its destination; (2) the rate of discharge must not exceed 60 litres per nautical mile; (3) the oil content of the discharge must be less than 100 parts per 1,000,000 parts of the mixture discharged; and (4) the discharge must be made "as far as practicable from land."[81] Restrictions (1) and (2) are identical for discharges from tankers. In addition, a third limitation applied to tankers prohibits the total quantity of oily discharge from exceeding 1/15,000 of the total cargo carrying capacity and the tanker must be more than 50 miles from the nearest land.[82] Under the amendments no oil discharge of any kind is acceptable from vessels weighing over 20,000 gross tons regardless of its position relative to the prohibitive zones.[83] However, these provisions apply only to tankers constructed after the amendments came into force. Thus, a substantial number of tankers in operation prior to 1969 would not be covered. The Convention would be made more effective by restricting discharges from all vessels, regardless of construction date.

Article IV establishes provisions which, as a practical matter, exempts most discharges of oil by ships.[84] Presumably, an entire cargo of oil may be intentionally dumped if the following conditions are met: (1) if the

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[76] Comment, *supra* note 3, at 326 n.51. The following countries are parties to the 1954 Convention as of January 24, 1969: Algeria, Australia, Belgium, Canada, Denmark, Dominican Republic, Finland, France, Federal Republic of Germany, Ghana, Greece, Iceland, Ireland, Israel, Italy, Ivory Coast, Japan, Jordan, Kuwait, Lebanon, Liberia, Malagasy Republic, Mexico, Morocco, The Netherlands, Nigeria, Norway, Panama, The Philippines, Poland, Portugal, Spain, Sweden, Switzerland, Syria, United Arab Republic, United Kingdom, United States, and Venezuela.

[77] International Convention for the Prevention of Pollution of the Sea by Oil, 1954, *open for signature* May 12, 1954 [1961] art II, 3 U.S.T. 2989, T.I.A.S. No. 4900, 327 U.N.T.S. 3.

[78] Comment, *supra* note 3, at 328.

[79] International Convention for the Prevention of Pollution of the Sea by Oil, 1954, *open for signature* May 12, 1954 [1961] art. III, § 6, 3 U.S.T. 2989, T.I.A.S. No. 4900, 327 U.N.T.S. 3.

[80] *Id.*

[81] *Id.* § a.

[82] *Id.* § b.

[83] Comment, *supra* note 3, at 328.

[84] Internation Convention for the Prevention of Pollution of the Sea by Oil, 1954, *open for signature* May 12, 1954 [1961] art. IV, 3 U.S.T. 2989, T.I.A.S. 4900, 327 U.N.T.S. 3.

discharge of oil is aimed at saving a life, or (2) if the discharge of oil is aimed at preventing damage to the vessel or its cargo. In addition, discharging bilge water, which often contains large amounts of oil, is protected under the Convention.[85] On the other hand, penalties are provided for those discharges of oil not exempted;[86] and if the discharge is completed outside territorial waters, the penalties imposed by the contracting party cannot be less than the penalties imposed for offenses committed within its territorial waters.[87]

Article VII suggests, but does not require, that vessels be fitted with equipment capable of separating oil from bilge water before it is discharged.[88] Any future treaty should require the installation of separators by a specific date.

Article VIII requires the contracting parties to provide reception facilities for oily wastes at major ports within three years.[89] The Article would have been more effective, however, if it had also required the retention of bilge water and ballast if a vessel is bound for a port equipped with applicable processing facilities. Since the cumulative effect of dumping ballast and oily bilge water only complicates the oil pollution crisis, it should not have been sanctioned by treaty.

Article IX establishes procedures for keeping a log book recording all oil discharges; but the provision is weak because the log book is to be kept by ship's crew.[90] The significance of this is indicated in a statement by Douglas L. Gregg, a member of the Environment Quality Committee,[91] who thinks that crews may not report all violations properly and offers a suggestion to improve the situation:

> [O]il spills caused by discharging ballast at sea can be controlled by placing Coast Guard personnel on every oil tanker that sails to or from an American port. . . . He [Gregg] concedes that this may sound expensive but that in truth the costs would be but a small fraction of the costs which will arise if the Coast Guard seeks to solve the problem by intensively patrolling with aircraft and vessels. A 3 man pollution control team would be placed on each tanker which would allow for three 8-hour watches.[92]

Committee member Gregg would give control teams authority to check the log book during a voyage or to maintain the log themselves[93] and he cites the practice of Coast Guardsmen riding merchant marine vessels dur-

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[85] *Id.* art. V.
[86] *Id.* art. VI.
[87] *Id.*
[88] *Id.* art. VII.
[89] *Id.* art. VIII.
[90] *Id.* art. IX.
[91] *See* 4 NATURAL RESOURCES LAW NEWSLETTER, Jan. 1971, at 3.
[92] *Id.*
[93] *Id.*

ing World War II as precedent.[94] Answering critics who submit there is a lack of funds to begin such a program now, United States Senator Mike Gravel of Alaska has pointed to the swift action taken to obtain funds for the airline agent program to prevent skyjacking.[95]

The International Convention for Prevention of Oil Pollution has not escaped criticism. One authority explains:

> The difficulty, in fairness, does not lie entirely with the treaty: The relatively few states who are parties, the difficulties associated with detecting and policing violations, and the sometimes unenthusiastic approach taken by flag states, particularly where "Flags of Convenience" are involved are formidable obstacles.[96]

Although the Convention attempted to regulate oil discharges into the sea, it did not authorize preventive action in the case of a casualty at sea. Thus, another international document was needed to regulate this problem.

B. *The International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties*

Two additional documents[97] resulted from the IMCO meeting at Brussels in November, 1969.[98] The first was the International Convention Relating to Intervention on the High Seas in cases of Oil Pollution Casualties,[99] a prevention oriented document. The scope of the Convention's intention is indicated in Article I:

> Parties to the present Convention may take such measures on the High Seas as may be necessary to prevent, mitigate or eliminate grave and immi-

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[94] *Id.*

[95] *Id.*

[96] Neuman, *supra* note 2, at 352. When a vessel flies a flag of convenience, it has registered with a state that permits relaxed construction standards and imposes minimum conditions for obtaining their flag of registry. A minimum of control is also associated with such registry. *See* J. BRIERLY, THE LAW OF NATIONS 310 (6th ed. 1963). Nations which have obtained a reputation of granting flags of convenience are, therefore, popular with shippers. Maritime nations not granting flags of convenience felt that they were at a disadvantage competitively and attempted to rectify the problem. Opponents to such convenience registration had token success when the Convention on the High Seas was drafted. Convention on the High Seas, *open for signature* Apr. 28, 1958, 13 U.S.T. 2312, T.I.A.S. No. 5200, 450 U.N.T.S. 82. The Convention came out of Geneva with a new test for nationality of a vessel. The test of "genuine link," a term taken from the *Nottebohm Case*, [1955] I.C.J. 6, was adopted. The International Court of Justice in the *Nottebohm* case left nations with an ambiguous definition of "genuine link" and subsequently has been criticized for it. Although the term was later embodied in the Convention, it was not clarified. In a further attempt to attack flags of convenience and clarify the term "genuine link," a proposal was offered at a meeting of the International Law Commission. The proposal would have allowed a state to withhold recognition of nationality from a vessel if the state felt, using it's own judgment, a genuine link did not exist. The proposal was defeated by a vote of 30 against and 15 in favor with 17 abstentions. FRIEDMAN, LISSITZYN AND PUGH, INTERNATIONAL LAW, 576-77 (1969).

[97] Neuman, *supra* note 2, at 362-63.

[98] IX INTERNATIONAL LEGAL MATERIALS 25 (1970) [hereinafter cited as CONVENTION RELATING TO INTERVENTION].

[99] *Id.*

> nent danger to their coastline or related interests from pollution or threat of pollution of the seas by oil, following upon a maritime casualty or acts related to such a casualty, which may reasonably be expected to result in major harmful consequences.[100]

Clause 2 of the same article exempts warships or other government owned vessels. Parties to the Convention are admonished not to exceed that amount of action necessary to secure the objective.[101]

Before the Convention became effective it was criticized as "merely declaratory of the existing rights of the coastal states"[102] and was declared to be ineffective because it endorsed remedial action only after the casualty occurs.[103] Moreover, like its predecessors, the Convention does not attack the problem of off-shore drilling installations. An effort to regulate off-shore installations was made, however, at a meeting in Tokyo[104] of the Bureau Permanent of the Comite Maritime International (C.M.I.).[105] The Swedish delegation submitted a proposal concerning off-shore installations calling for a study of oil pollution by such installations and appropriate restrictions included in this convention. The Swedish proposal was defeated by a vote of 13 to 5 with 5 abstentions.[106]

As the C.M.I. met in Tokyo, the IMCO Council was meeting in Brussels to study further changes in the international conventions.[107] The second document drafted in Brussels in 1969 deals with civil liability for oil pollution.[108]

C. *The International Convention on Civil Liability for Oil Pollution Damage*

Article III of the Civil Liability Convention adopts a strict liability

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[100] *Id.* art. 1.

[101] *See, e.g.*, CONVENTION RELATING TO INTERVENTION art. II-VIII.

[102] Neuman, *supra* note 2, at 353.

[103] *Id.* The definition as to what type of casualty must occur is provided in article I: There must be a "grave and imminent danger to the coastline" which will result in "major harmful consequences." CONVENTION RELATING TO INTERVENTION art. I.

[104] C.M.I. and IMCO worked in different parts of the world on what were to become the two conventions discussed herein.

[105] Healy, *The C.M.I. and IMCO Draft Conventions on Civil Liability For Oil Pollution*, 1 J. MAR. L. & COMM. 93, 96 (1969) [hereinafter cited as Healy].

[106] *Id.*

[107] Specifically, the Council agreed to study:

> All questions relating to the nature (whether absolute or not), extent and amount of liability of the owner or operator of a ship or the owner of the cargo (jointly or severally) for damage caused to third parties by accidents suffered by the ship involving the discharge of persistent oils or other noxious or hazardous substances and in particular whether it would not be advisable:
>
> (a) to make some form of insurance of the liability compulsory;
>
> (b) to make arrangements to enable Governments and injured parties to be compensated for the damages due to the casualty and the costs incurred in combating pollution in the sea and cleaning polluted property. *Id.* at 93.

[108] IX INTERNATIONAL LEGAL MATERIALS 45 (1970).

standard for oil spills,[109] but limits the impact of the Convention by providing several exceptions. Thus, if pollution damage is caused by an act of war, civil war, or a "natural phenonenon of an exceptional, inevitable and irresistable character,"[110] there is no liability. Furthermore, if the spill is caused solely by a third party or by a government responsible for the maintenance of navigational aids, liability is excused. Article III also provides for partial or complete absolution of any liability if the damaged party contributed to the oil spill.[111] Finally, the provisions establishing liability are further limited by detailed monetary restrictions.[112]

Apparently recognizing there was much to be desired in the conventions on oil pollution casualties and on civil liability for oil pollution damage, the International Legal Conference adopted a resolution requesting

> the Inter-Governmental Maritime Consultative Organization to elaborate as soon as possible, through its Legal Committee and other appropriate legal bodies, a draft for a compensation scheme based upon the existence of an International Fund.[113]

Such an international fund should enable injured parties to recover damages for oil pollution; and if established, it should be based upon the following principles:[114]

> (1) The corpus of the fund should be established by assessing a surtax levied on a per gallon of oil basis transported from one port to another.[115]
>
> (2) Claims for clean-up expenses and damages for destroyed beaches and wildlife should be paid out of the fund.[116]
>
> (3) The articles should provide that traditional bars to recovery, such as procedural requirements and jurisdiction, would not be available to the offenders.[117]

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[109] *Id.* art III.

[110] *Id.* § 2(a).

[111] *Id.* art. III, § 3.

[112] Tanker owners may limit their liability to the amount of 2,000 francs in the aggregate. An overall maximum ceiling of 200 million francs is imposed. If, however, a spill occurs as a result of "actual fault" by the owner, the 200 million franc limitation is not available. When liability is established the owner is called upon to create a fund with the International Court of Justice or other authority or any one of the contracting states in which the action is brought. When the fund is established, the owner's other assets are placed beyond the reach of the complainants. Complaining contracting states may then present their request for a proportionate share of expenses incurred in cleaning up and for damages suffered. Only states can be reimbursed. Private parties are not permitted to present a claim to the holder of the fund and must seek a remedy elsewhere. In addition to the fund requirements, the vessel owners are called upon to maintain insurance or provide proof of other suitable financial security. Only vessels carrying over 2,000 tons of oil are affected. *Id.* arts. V, VI, and VIII.

[113] *Resolution on Establishment of an International Compensation Fund for Oil Pollution Damage*, 1 J. MAR. L. & COMM. 386 (1970).

[114] Comment, *Post 'Torrey Canyon': Toward A New Solution to the Problem of Traumatic Oil Spillage*, 2 CONN. L. REV. 632 (1970).

[115] *Id.*

[116] *Id.*

[117] *Id.*

(4) Private parties should be precluded from asserting a claim; all private requests for reimbursements or damages should be channeled through national governments.[118]

(5) Licensing power should be given to officials of the fund; and the power to revoke an owner's authority to transport oil could be exercised based upon continued abuses by the particular owner.[119]

(6) The vast majority of maritime nations must subscribe to the fund in order for it to be effective.

(7) An incentive for all nations to join the fund could be provided if proof of surtax payment was a condition to using the port facilities of the major member states. Once the major maritime nations began to enforce the fund's provisions, the nonmembers might be encouraged to join.[120]

Another scheme to pay for pollution damage has been suggested by a French economist, Dr. Bertrand de Jouvenel, who proposes the imposition of an ocean tax upon vessels using the high seas.[121] According to Dr. de Jouvenel, such a tax can be likened to the highway tax on trucks; but unlike trucks, ocean-going vessels presently have free use of the seas.[122] Therefore, this proposal would require an international authority to levy and collect the tax[123] with the proceeds being applied to antipollution

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[118] *Id.*

[119] *Id.* at 645.

[120] *Id.* at 646.

[121] Hoyt, *Ocean-Use Tax Proposed*, The Christian Science Monitor, Oct. 8, 1971, at 12, col. 2.

[122] *Id.*

[123] Hoyt, *Tax On Use of High Seas Proposed by French Economist*, The Christian Science Monitor, Oct. 9, 1971, at 4, col. 2.

The Washington legislature has recently enacted legislation with provisions very similar to those suggested by Dr. Bertrand de Jouvenel. The provisions are as follows:

NEW SECTION. Sec. 4. There is added to chapter 133, Laws of 1969 ex. sess. and to chapter 90.48 RCW a new section to read as follows:

The coastal protection fund is established to be used by the department as a revolving fund for carrying out the purposes of RCW 90.48.315 through 90.48.365 and this 1971 amendatory act. To this fund there shall be credited penalties, fees, and charges received pursuant to the provisions of RCW 90.48.315 through 90.48.365 and an amount equivalent to one cent per gallon from each marine use refund claim under RCW 82.36.330.

Moneys in the fund not needed currently to meet the obligations of the department in the exercise of its powers, duties, and functions under RCW 90.48.315 through 90.48.365 and this 1971 amendatory act shall be deposited with the state treasurer to the credit of the fund and may be invested in such manner as is provided for by law. Interest received on such investment shall be credited to the fund.

NEW SECTION. Sec. 5. There is added to chapter 133, Laws of 1969 ex. sess. and to chapter 90.48 RCW a new section to read as follows:

(1) Moneys in the costal protection fund shall be disbursed for the following purposes and no others:

(a) All costs of the department related to the enforcement of RCW 90.48.315 through 90.48.365 and this 1971 amendatory act including but not limited to equipment rental and contracting costs.

(b) All costs involved in the abatement of pollution related to the discharge of oil.

(c) The director may allocate a portion of the fund to be devoted to research and development in the causes, effects, and removal of pollution caused by the discharge of oil.

activities.[124]

Of course, the ultimate success of either an international fund or an ocean use tax depends on obtaining the total support of the maritime nations. This would indeed be a difficult task,[125] but it must be accomplished if oil pollution is to be eliminated. Moreover, it is necessary that cooperation from the shipping industry be solicited and received.

D. *Tanker Owners Voluntary Agreement Concerning Liability for Oil Pollution (TOVALOP)*

An effort at self-regulation on the part of tanker owners was signed into being on January 1, 1969.[126] The emphasis of TOVALOP is on reimbursement: a government's reasonable expenses incurred in preventing or cleaning up pollution as a result of a "negligent discharge"[127] would be paid. The term "negligent discharge" requires proof of negligence with absolute liability as the goal.[128]

However, like the other agreements, TOVALOP has its shortcomings. For example, private parties are not permitted to present a claim for damages under TOVALOP and thus only nations having an organized program to combat oil pollution will have their claims honored. Although cooperation from the shipping industry is necessary, oil pollution prevention should be attacked by an international organization and not by the shipping industry itself because the interests of the industry would seem to inhibit a sincere and vigorous enforcement effort. While vital national interests can as readily provide a basis for questioning a nation's sincerity when a conflict arises,[129] nations are better equipped to fight oil pollution because they have the monetary and physical resources, the administrative structures, and the necessary communication networks so vital to oil pollution prevention.[130]

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(2) Moneys disbursed from the coastal protection fund for the abatement of pollution caused by the discharge of oil shall be reimbursed to the fund whenever:
(a) Moneys are available under any federal program; or
(b) Moneys are available from a recovery made by the department from the person liable for the discharge of oil.
Ch. 180, §§ 4, 5, [1971] Wash. Leg. Serv. 1st Extra-ordinary Session 623.

[124] *Id.*

[125] For a brief discussion of the political realities, strategy and national interests involved in and revolving around the use of the oceans, *see* Hull, *The Political Ocean*, 45 FOREIGN AFFAIRS 492 (1967) [hereinafter cited as Hull].

[126] VIII INTERNATIONAL LEGAL MATERIALS 497 (1969).

[127] *Id.*

[128] *See, e.g.*, Comment, *Absolute Liability For Oil Spillage*, 36 BROOKLYN L. REV. 359 (1970).

[129] Hull, *supra* note 125.

[130] *See* Smith, *supra* note 5, at 163. *See also* Guernsey, *Dilemma of Sea Oil Spills—Early Reports Could Help*, The Oregonion, Aug. 31, 1971, at 14, col. 4.

E. *Regional Arrangements*

A multitude of regional pacts similar to the Agreement Concerning Pollution of the North Sea by Oil[131] might be desirable if a broad-based international treaty is not adopted. The North Sea Agreement, with eight signatories,[132] is the first regional anti-oil pollution pact. The North Sea geographical area to which the Agreement addresses itself is described in detail in Article II.[133] Cooperation among the signatories is the theme of the Agreement, with each signatory being required to provide the others with information concerning its pollution control organizations and the nature of the resources that can be used to prevent, dispose of, and clean up oil pollution.[134] Whenever any party to the Agreement learns of an oil pollution casualty likely to become a serious threat to another state's coastline, it is required to inform the endangered party at once.[135] Each contracting party is assigned a geographic zone for which it has the responsibility of notifying other signatories of the nature and progress of oil slicks within its particular zone.[136] Any state requiring assistance to dispose of the threat may call for such assistance from any other contracting party. A call for assistance is to be directed first to the party whose shores are threatened and then to the remaining parties if their assistance is still required.[137]

The North Sea Agreement has several provisions worthy of being embodied in any future international treaty. The Agreement's assignment of geographic zones for surveillance and cleanup is a desirable one. Such a procedure directs each nation to take steps to prevent or clean up oil pollution whenever it is detected in that party's zone. Thus, the immediate concern is with prevention and cleanup—two phases of oil pollution that demand immediate attention.

The regional character of the North Sea Agreement has strengths as well as weaknesses. The strength lies in the close cooperation and assignment of specific duties, indicated in the articles of the document. The regional approach is also desirable in that it could provide a medium ground between the broad international approach to oil pollution and the

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131 IX INTERNATIONAL LEGAL MATERIALS 359 (1970).

132 Belgium, Denmark, France, West Germany, The Netherlands, Norway, Sweden, Great Britain and Northern Ireland. *Id.*

133 For the purpose of the Agreement the North Sea Area means the North Sea proper southwards of latitude 61° N, together with
(a) The Skagerrak, the southern limit of which is determined by a line joining Skagen and Pater Noster Skaren;
(b) The English Channel and its approaches eastwards of a line drawn fifty nautical miles to the west of a line joining the Scilly Isles and Ushant. *Id.* art. II.

134 *Id.* art. IV.

135 *Id.*

136 *Id.*

137 *Id.* art. VII.

narrow national approach.[138] The weakness is also twofold: (1) Some nations in the North Sea area are not parties, notably Iceland, Wales, Scotland and Finland; and (2) the Agreement could cause difficulties when its provisions overlap or conflict with those of a broader based international convention.

Rather than forming a new organization to implement this Agreement, the suggestion has been made that NATO acquire a third dimension—an arm to combat oil pollution.[139] Regional defense pacts such as NATO have the necessary administrative structure, communications network, and some of the logistic support ready for action. This concept could be enlarged to encourage several such arrangements. SEATO, CENTO and The Warsaw Pact, among others, could be adapted to this new challenge. Any future discussion of an international solution to the oil pollution problem should consider such a possibility.

III. The United States Response

The United States Congress enacted water pollution legislation as early as 1886.[140] The first legislation in the United States aimed specifically at the oil pollution problem was the Oil Pollution Act of 1924.[141] The 1924 Act prohibited the discharge of oil "by any method, means or manner into or upon the coastal navigable waters of the United States."[142] Amended in 1966, this prohibition was broadened to bar the discharge of oil on "adjoining shorelines of the United States." The amended Act also extended its prohibition to nonnavigable areas.[143]

Any person responsible for discharging oil or permitting it to be discharged was required by the 1966 amendments to remove it immediately.[144] The Secretary of Interior could remove the oil if the pollution did not do so[145] and the person responsible for the pollution would then be assessed the cost of cleaning up.[146] If the polluter failed to clean up the oil im-

138 Basiuk, *Marine Resources Development, Foreign Policy and the Spectrum of Choice*, 12 ORBIS 49 (1968) [hereinafter cited as Basiuk].

139 Hartley, *supra* note 14, at 498.

140 Healy & Paulsen, *supra* note 71, at 538.

141 Act of June 7, 1924, ch. 316 §§ 1, 5, 7, 8, 43 Stat. 604, *as amended* 33 U.S.C. §§ 1001-15 (1970).

142 *Id.* § 3.

143 Clean Water Restoration Act of 1966, Pub. L. No. 89-753, title II, § 211(a), 80 Stat. 1252, *as amended* 33 U.S.C. §§ 1001-15 (1970).

Although the International Convention for the Prevention of Pollution of the Sea by Oil came into effect in 1958, the United States did not ratify it and enact implementing legislation until 1961 in the form of the Oil Pollution Act of 1961. Each time the Convention was amended, the United States responded by amending the Oil Pollution Act. 33 U.S.C. §§ 1001-15 (1970). *See* Healy & Paulsen, *supra* note 71 at 539.

144 Clean Water Restoration Act of 1966, Pub. L. No. 89-753, title II, § 211(a), 80 Stat. 1252, *as amended* 33 U.S.C. §§ 1001-15 (1970).

145 *Id.*

146 *Id.*

mediately, the offender would also be assessed a penalty.[147] A discharge for which one would be held accountable under the 1966 amendments is defined as "any grossly negligent, or willful spilling, leaking, pumping, pouring, emitting or emptying of oil."[148] Certain exceptions are also provided: "[I]n case of emergency imperiling life or property, or unavoidable accident, collision, or stranding . . . [or] as otherwise permitted by regulations prescribed by the Secretary . . . ."[149]

The 1924 Act included imprisonment provisions,[150] which were eliminated in the 1966 amendments[151] and replaced by a maximum fine of $10,000.[152] Since the imposition of a $10,000 fine could prove to be little more than an inconvenience for prospering tanker owners, perhaps a more effective penalty would be to compound the fine by regarding each day that a spill remains uncleaned as a separate violation. There is a provision permitting the denial of clearance from a United States port if the fine is not paid,[153] which may be a step in the right direction.

The amended United States legislation does not prohibit the discharge of oil or oily mixtures (1) if done to secure the safety of a vessel, (2) if done to prevent damage to vessel or cargo, (3) if caused by a damaged ship or unavoidable leakage,[154] or (4) if "the discharge of residue [came] from the purification or clarification of fuel oil or lubricating oil: *Provided*, That such discharge is made as far from land as practicable."[155] A further exception is provided for "the discharge from the bilges of a ship of an oily mixture containing no oil other than lubricating oil which has drained or leaked from machinery spaces."[156] All of these exceptions are unfortunate because of the cumulative effect of even minute discharges of oil. Thus, it is inaccurate to assert that pollution in small doses will not cause damage to beaches, pleasure boats, or sea life in the same manner as discharges from large disasters.

The Federal Water Pollution Control Act,[157] first enacted in 1948, declares that the policy of Congress is:

> [T]o recognize, preserve, and protect the primary responsibilities and rights of the States in preventing and controlling water pollution, to support and aid technical research relating to the prevention and control of

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147 *Id.*

148 *Id.*

149 *Id.*

150 Act of June 7, 1924, ch. 316, § 4, 43 Stat. 604, *as amended* 33 U.S.C. §§ 1001-15 (1970).

151 Clean Water Restoration Act of 1966, Pub. L. No. 89-753, title II, § 211(a), 80 Stat. 1252, *as amended* 33 U.S.C. §§ 1001-15 (1970).

152 *Id.*

153 *Id.*

154 *See* Annot., 2 A.L.R. FED. 794 (1969).

155 33 U.S.C. § 1003 (1970).

156 *Id.* § 1004.

157 *Id.* § 1151.

> water pollution, and to provide Federal technical services and financial aid to State and interstate agencies . . . .[158]

Subsequent revisions, however, have been significant. The revisions break new ground by regulating a heretofore untouched activity—off-shore drilling installations.[159]

Within 60 days after the effective date of the section on Control of Pollution by Oil, the President is called upon to propose a contingency plan for preventing oil pollution damage. The purpose of the contingency plan is to aid in disposing and removing spilled oil. The most important provisions of the Act require the assignment of duties and responsibilities to federal agencies, which in turn are to cooperate with state governments.[160] Equipment and supplies for accomplishing the task of disposing and removing oil are to be procured and stored for immediate use.[161] A strike force composed of trained personnel is established to provide the necessary manpower[162] and a national surveillance and coordination center are established to provide early warnings and to direct operations.[163]

The provisions establishing the plan are supplemented by regulations of monetary liability for oil pollution. All vessels over 300 gross tons are required to produce and maintain evidence of financial responsibility. This requirement applies only to vessels using American ports or navigable waters of the United States and must equal $100 per gross ton, or $14 million, whichever is the lesser amount.[164] Here again, several qualifications limit the effectiveness of a pollution control measure.

IV. A Commitment to a Strict Liability Standard: The Example of the State of Washington

The State of Washington has attacked the problem of oil pollution vigorously with the imposition of a strict liability standard for pollution of its waters by oil. The Washington legislation makes it unlawful

> for oil to enter the waters of the state from any ship or any fixed or mobile facility or installation located offshore or onshore whether publicly or privately operated, regardless of the cause of the entry or fault of the person

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158 *Id.*

159 33 U.S.C. § 1161 (1970).

160 *Id.* § 1161(c)(2)(A).

161 *Id.* § 1161(c)(2)(B).

162 *Id.* § 1161 (c)(2)(C).

163 *Id.* § 1161(c)(2)(D).

164 Healy & Paulsen, *supra* note 71, at 547. The fund thus established will be subject to claims unless the owner or operator of the vessel or off-shore installation can prove:

> [T]hat the discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses . . . . 33 U.S.C. § 1161(f) (1970).

> having control over the oil, or regardless of whether it be the result of intentional or negligent conduct, accident or other cause.[165]

The exceptions to this section are limited and can be stated briefly: (1) if the water pollution control commission gave its permission *before* the oil entered the water, or (2) if the pollution was caused by an act of war, the federal government, or the State of Washington.[166] Whoever spills the oil is obligated to remove it.[167] The Washington statute also imposes its own standard of liability:

> Any person owning oil or having control over the same which enters the waters of the state in violation of RCW 90.48.320 *shall be strictly liable, without regard to fault,* for the damages to the persons or property, public or private, caused by such entry.[168]

The 1971 Extraordinary Session of the Legislature amended the act to define "ship" and "waters" specifically. The amendment also adopted procedures similar to the federal legislation discussed earlier by establishing a contingency plan and a fund.[169]

The foregoing conventions, federal legislation, and state statutes all address themselves to the oil pollution crisis. Nevertheless, oil pollution of the oceans continues and for this reason, there must be a renewed effort on an international basis with all maritime nations as parties. The new effort should embody ideas from the North Sea Agreement, the liability standard imposed by the State of Washington, and the Contingency Plan adopted by the federal government and then combine them into one workable international document.

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165 WASH. REV. CODE § 90.48.320 (1970).

166 *Id.*

167 *Id.* § 90.48.325.

168 *Id.* § 90.48.326 (emphasis added).

169 33 U.S.C. § 1161 (1970). The significant provisions of the Coastal Waters Protection Act of 1971 are:

> Sec. 3. There is added to chapter 133, Laws of the 1969 ex. sess. and to chapter 90.48 RCW a new section to read as follows:
>
> The department may adopt rules and regulations including but not limited to the following matters:
>
> (1) Procedures and methods of reporting discharges and other occurrences prohibited by RCW 90.48.315 through 90.48.365 and this 1971 amendatory act;
>
> (2) Procedures, methods, means, and equipment to be used by persons subject to regulation by RCW 90.48.315 through 90.48.365 and this 1971 amendatory act and such rules and regulations may prescribe the times, places and methods of transfer of oil;
>
> (3) Coordination of procedures, methods, means and equipment to be used in the removal of oil pollutants;
>
> (4) Development and implementation of criteria and plans to meet oil pollution occurrences of various kinds and degrees;
>
> (5) The establishment from time to time of control districts comprising sections of the state coast and the establishment of rules and regulations to meet the particular requirements of each such district. Coastal Waters Protection Act of 1971, ch. 180 § 3, [1971] Wash. Leg. Serv. 1st Extraordinary Session 624.

V. A Proposal for Effective Action

First and foremost, steps must be taken to prevent further oil pollution. Assuming there will be further oil pollution, cleanup methods must also be developed.

A. *Prevention*

One of the primary needs in oil pollution prevention is the improvement of navigational aids to assist super tankers. This should include but not be limited to:

(1) The creation of sea lanes for supertankers and designation of prohibited areas for tankers.[170]

(2) Establishment of an elaborate system of bouys to warn tanker captains of potential dangers.[171]

(3) Shore guidance systems for ships that navigate too close to land.[172]

(4) Speed restrictions.[173]

(5) Use of automatic pilots.[174]

(6) Review[175] and implementation of[176] new legal requirements of tanker construction and design of tankers.[177]

(7) Organization of more efficient watches to prevent collisions.[178]

(8) Institution of standard qualifications for crews and officers.[179]

(9) For off-shore installations the most critical action needed is enforcement of safety standards. Safety valves must be inspected as required and present regulations must be enforced.[180]

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[170] Wolman, *Pollution As An International Issue*, 47 FOREIGN AFFAIRS 173 (1968) [hereinafter cited as Wolman].

[171] Schachter & Serwer, *supra* note 37, at 93.

[172] Wolman, *supra* note 170, at 173.

[173] *Id.*

[174] *Id.*

[175] *Id.*

[176] Schachter & Serwer, *supra* note 37, at 93.

[177] Nanda, *supra* note 6, at 52.

[178] Wolman, *supra* note 170, at 173.

[179] Schachter & Serwer, *supra* note 37, at 93.

[180] *See* Nanda & Stiles, *Offshore Oil Spills: An Evaluation of Recent United States Responses*, 7 SAN DIEGO L. REV. 519 (1970). Imposition of watches, strict and uniform standards for training crews and captains, and strict construction standards will be for naught, however, if episodes like the following are permitted:

> On this particular voyage, Captain Jansen soon proved the value of his training. Having stopped and anchored "Europort" three miles from the tricky entrance to Milford Haven, Jansen waited for the local pilot to help him guide the ship over a rock shelf into the harbor. The pilot was due at 11 p.m.—moments before the needed tide would reach its highest. 'Can't get a lunk like this over the shelf with that tide. Unless the ship is moved immediately, . . . the 17-ft. tide would dwindle—marooning "Europort" for four days.' That was bad news for Jansen: delays cut profits . . . 'It's too late, Captain;' the pilot murmured. 'We're going in,' Jansen persisted . . . 'What's your reading keel to bottom?' Six fathoms . . . five . . . four . . . one and a half. Finally, the reading was less than 6-ft. with a 16.3 ft. tide. But then a slight wind sustained the tide so the "Europort" could squeeze over the rocks at three knots . . . "How did you know it would work?" (He was asked) . . . he replied cooly, "I couldn't sit out there for four days."

TIME, Mar. 29, 1971, at 49.

Since even strict preventative measures may not be foolproof,[181] cleanup methods must be developed and perfected in order to have an alternative.

B. *Mopping Up*

Several dispersant and soak-up agents have proved effective while others have not. Other agents have been proposed but not tested. Therefore, a determination of which agents are the most effective should be made and then these agents should be stockpiled for future use.[182]

When the *Torrey Canyon* went aground, France found powdered chalk and sawdust reasonably effective in the cleanup effort.[183] However, powdered chalk often sinks to the bottom taking the oil with it.[184] Steam cleaning and use of detergents have been helpful in cleaning beaches and rocks;[185] but detergents might have to be removed from the list of acceptable cleaning agents because they, too, interfere with the aquatic life cycle.[186] Sawdust, talcum powder, and silicone-treated fuel ash have been spread on oil slicks and then raked up with some degree of success.[187] At Santa Barbara, straw proved very effective in soaking up the oil;[188] but dispersants, booms, and skimmers were not helpful to the Santa Barbara cleanup crew.[189]

Other, more complicated methods have been developed and tested with varying degrees of success. Air rigs attached to boats which suck up spilled oil have been used and boats with large rotating, specially treated drums have also worked.[190] A Canadian engineer has developed a similar system using a large conveyor belt that soaks up oil as it passes through a slick.[191] The USSR has developed a vessel that can skim 7 tons of oil

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181 Nanda, *supra* note 6, at 52.

182 This procedure has been required on the national level by the Federal Water Pollution Control Act, 33 U.S.C. § 1161 (1970). For an excellent example of a contingency plan at the state level, *see* Coastal Waters Protection Act of 1971, ch. 180, [1971] Wash. Leg. Serv. 1st Extraordinary Session 624.

183 Smith, *supra* note 5, at 164.

184 *Id.* In this case, a choice must be made between oil that will reach the beaches or oil sent to the bottom of the sea. Perhaps dispersants of this type should be avoided altogether for this reason.

185 *Id.*

186 Nanda, *supra* note 6, at 52.

187 *Id.*

188 Dedera, *supra* note 4, at 25.

189 *Id.*

190 Nanda, *supra* note 6, at 52. The drums are lowered onto the spilled oil and rotated. The oil is soaked up and the water repelled. When the drum is raised it is brought to a position over the boat and the oil squeezed into the boat. When a tanker runs aground, a small boat could pull up alongside of the vessel and pump the oil out of the stranded tanker. Existing equipment would make this possible. *Id.*

191 The Christian Science Monitor, Sept. 28, 1971, at 2, col. 1.

> The unit consists of a large conveyor belt, made of a fibrous absorbent material, that soaks up oil as it passes through a slick. As the belt moves through a system of rollers, the oil is squeezed out into a hold on the barge from which the unit operates. The

per hour from the ocean surface[192] and Canada has succeeded in pumping large quantities of oil from sunken tankers.[193] The United States is experimenting with the use of outdated Liberty ships to be converted into floating treatment plants.[194] Finally, a process has recently been developed that would remove oil from bilge water and ballast before it is dumped,[195] thereby eliminating a persistent source of oil pollution.

A brief glance at the various innovations indicates that it is the "have" nations that are developing them—Canada, France, the USSR and the United States. If oil pollution is to be prevented and cleaned up properly, then there should be an agreement providing that all nations will either have in their possession or have access to the finest equipment that technology can provide. New techniques and developments cannot be useful if they are available to only a few states.

C. *Who Should Pay?*

The provisions and regulations of the existing conventions and statutes suggest a lack of determination to take the position necessary on liability and compensation for oil pollution damage. The cost of oil pollution can best be born by the one who is receiving the financial benefit from the sale and transport of oil. The international fund described earlier could be established to insure a source of reimbursement. But, fund or not, strict liability should be the standard. The decision must be made by the maritime nations that oil pollution of the oceans can no longer be tolerated. The need is urgent and the methods are available. The only ingredient missing is determination.

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recovered oil is so clean it can usually be packed immediately in barrels ready for use. . . . The licker soaks up the oil at a rate of 45 gallons a minute, or about 60,000 a day. . . . Before going into aperation, the conveyor belt is treated with a light oil to which the heavier oil in the slick adheres. The advantage of the Sewell machine is its ability to recover spilled oil. Dispersing oil slicks with cracking emulsions or chemicals destroys the oil and damages sea life. *Id.*

192 Schachter & Serwer, *supra* note 37, at 91.

193 *Id.*

194 The Christian Science Monitor, April 10, 1971, at 5, col. 3.

195 Wolman, *supra* note 170, at 174.